

## **APT Center Awarded Grant from the National Institute of Health for Developmental Material Research**

The APT Center is proud to announce the National Institute of Health (NIH) has awarded the APT Center team lead by associate director of design and prototyping, Dustin Tyler, Ph.D. an R21, two-year exploratory grant for the development of a stimulus responsive, mechanically dynamic, nano-composite material. The nano-composite material was initially conceived by Drs. Christoph Weder and Stuart Rowan of the Macromolecular Engineering Department at Case Western Reserve University. The new grant is a direct result of expanded collaborations between the Biomedical Engineering and Macromolecular Engineering departments at Case and the VA.

“An important goal of the APT Center is to improve collaborations between leading researchers in areas important to Veteran’s rehabilitation and health care,” according to Dr. Tyler. The U.S. Department of Veterans Affairs (VA) funded early development, provided preliminary data vital to the NIH application. The research proposal was ranked in the top 12% of all the research proposals received by NIH, and is the first APT Center research project to receive funding outside the VA, making this the first successful collaboration facilitated by the Center. The APT Center is leveraging the matching contribution of the VA seed funding to the NIH full research funding to develop this new class of material for prosthetics devices and neural integration.

According to Dr. Tyler, “Our goal is to develop a material that will change mechanical properties in proportion to a command. In addition to the initial target application of cortical electrodes, this class of materials has wide-ranging possibilities, such as in stents, serial casting, prosthetic sockets, variable stiffness joints, dynamic connectors, erectile dysfunction, and neural interfaces, to name a few.” “In this project, we will develop a newly engineered device that improves integration with cortical neurons for multiple clinical applications and brain-computer interfaces,” says APT Center associate investigator, Jeffrey Capadona, Ph.D. “We are also exploring new applications such as wound care and burn care management with the new resources that this grant has afforded us.” The APT Center team dedicated to this research project includes: Drs. Tyler, Weder, Rowan, Capadona, Zorman, and Taylor, and engineers James Harris and Edward Arguello.